

STATEMENT OF WORK

Revision 1

RDT&E SUPPORT FOR TACTICAL ELECTRONIC WARFARE SIMULATION
NAVAL RESEARCH LABORATORY

1. INTRODUCTION

The Naval Research Laboratory (NRL) is seeking scientific and engineering support for the Tactical Electronic Warfare Division (TEWD). The primary purpose of TEWD is to advance the electronic warfare (EW) state-of-the-art in order to protect the warfighter from newly fielded and emerging threats. The contractor shall provide a technical team that possesses experience in EW simulation, testing and evaluation.

2. BACKGROUND

The NRL - TEWD is responsible for research, development, test and evaluation (RDT&E) activities that support the Navy's electronic protection (EP) and electronic attack (EA) systems, their capabilities and the associated tactics. Studies, analyses and simulations are performed to determine and improve the effectiveness of these systems. Field and flight tests are executed to confirm the results of laboratory work and demonstrate capability to the fleet.

The Integrated Electronic Warfare Simulation (IEWS) Branch is one of seven major elements of the TEWD. The IEWS Branch mission is to execute a multifaceted simulation program to advance U.S. Navy EW RDT&E. Under Office of the Chief of Naval Operations (OPNAV) sponsorship, the Branch provides for the research, development, operation and maintenance of radio frequency (RF) anti-ship missile simulators, a large hardware-in-the-loop simulation facility (the Central Target Simulator) and specially-configured flying EW laboratories (currently hosted on Lear jet platforms). In cooperation with the Office of Naval Intelligence, the Branch also maintains significant expertise to review threat capabilities and identify potential design weaknesses. The Branch simulation assets directly support the effectiveness evaluation of current and future EW systems and techniques in the RF domain.

3. PURPOSE

NRL requires contractor support in various scientific and engineering disciplines related to EW simulation and effectiveness evaluation. The principal place of performance will be on-site at NRL-DC which will permit contractor access to the specialized research equipment and facilities required for performance. During the execution of major experiments the contractor may need to provide support at field test sites. Work may also be conducted at the contractor's facility. With the exception of Section 4.4 – Reverse Engineering, which requires Top Secret/SCI (SI/TK/G/HCS) access, the minimum clearance level required for contractor personnel performing under this contract is Secret. If/when higher clearances are necessary for the performance of work, they will be specified in the Technical Direction Memo (TDM) associated with that work.

The Contractor shall provide support in the operation, maintenance and development of hardware anti-ship missile (ASM) simulators. A portion of the contractor's effort shall be devoted to operation, maintenance and development of NRL's Central Target Simulator (CTS) Facility, a closed-loop simulation facility that is used to evaluate the effectiveness of countermeasures in defeating RF-guided anti-ship missiles. Contractor assistance shall be provided to NRL in developing, operating and maintaining EW simulations and components of these simulations. The contractor shall provide support in the design, construction and verification of simulator control panels and software simulations of one or more aspects of an ASM engagement or an ASM subsystem. The Contractor shall provide support in EW test planning, logistics, management and documentation. The Contractor shall provide support for the special projects component of the IEWS Branch. Such support shall include analyses and documentation of these efforts. The Contractor's will support the Surface Electronic Warfare Improvement Program (SEWIP), Advanced Offboard Electronic Warfare (AOEW) Program, Effectiveness of Naval Electronic Warfare Systems (ENEWS) Program, Operational Navy (OPNAV) requirements and other test activities and sponsors as necessary.

4. REQUIREMENTS

The contractor shall provide scientific and engineering support in the following areas:

- 4.1 - Simulation Maintenance
- 4.2 - Simulation Operation
- 4.3 - Simulation Development
- 4.4 - Reverse Engineering
- 4.5 - EW Test Planning

4.1. Simulation Maintenance

- 4.1.1. The contractor shall perform periodic and preventative maintenance on hardware simulators, simulator control panels, digital simulations, hybrid simulations (i.e., a combination of hardware, software and firmware components), CTS closed-loop simulations and CTS subsystem controllers according to established cycles or as required by test schedules.
- 4.1.2. The contractor shall also perform maintenance on associated computer operating system(s), compilers, interface(s) to external components (e.g., VMIC, serial, parallel, USB, Firewire, Front Panel Data Port (FPDP), etc.), firmware and custom simulation software. Maintenance activities may be externally driven (e.g., preparation for a major test) or they may be required in order to identify operational issues that will subsequently be isolated, corrected and verified.

4.2. Simulation Operation

- 4.2.1. The contractor shall provide engineering support to NRL by operating EW simulations in support of Navy RDT&E. The contractor's efforts will include the setup, configuration and verification of the simulation or components of the simulation.
- 4.2.2. The contractor will assist with or be totally responsible for developing simulator specific test plans.
- 4.2.3. The contractor shall, during the experiments, operate one or more components of the simulation, provide a summary of the results immediately following each run and document results and observations in a test log. If questionable results arise, the contractor shall support efforts for verification of simulation operation.
- 4.2.4. The contractor shall, following each experiment, perform data reduction, analysis and required reporting.
- 4.2.5. The contractor shall provide field and flight test support in performance of this section.
- 4.2.6. The contractor shall be responsible for all required special clearances and/or certificates necessary in order to work on Navy and/or civilian contractor-owned aircraft and ships prior to each field and/or flight test.
- 4.2.7. The contractor shall provide support for any special data/security environments that need to be established for RDT&E experiments.

4.3. Simulation Development

- 4.3.1. The contractor shall provide support in the development of EW simulations, simulation components and advanced simulation capabilities.
- 4.3.2. The contractor shall provide support for the development of hardware threat simulators (including signal processing hardware, software and firmware), control panels and other hardware and/or software needed to support EW testing.
- 4.3.3. The contractor shall provide support in the development of software simulations for a threat missile or a missile subsystem.
- 4.3.4. The contractor shall provide support in the integration and use of the resulting software in the CTS Facility or in all-digital simulations

- 4.3.5. The contractor shall provide support in the development of new hybrid simulations.
- 4.3.6. The contractor will provide support in the development of advanced simulation capabilities to be applied to CTS, all digital, hybrid and hardware-based simulations. Simulation development efforts require the design and fabrication of custom printed circuit boards, wiring assemblies, programmable logic array firmware and software.
- 4.4. Reverse Engineering
- 4.4.1. The contractor shall provide support in EW reverse engineering of threat missiles, missile subsystems and defense equipment.
- 4.4.2. The contractor shall provide support for circuit tracing, schematic diagram development and circuit analysis.
- 4.4.3. The contractor shall also provide support in the analysis of software and its impact on the operation of the equipment.
- 4.4.4. The contractor shall utilize commercial software applications to generate schematic drawings, block diagrams, flow charts, presentations and narrative text that describe the operation of electronic assemblies and the associated control software.
- 4.4.5. The contractor shall provide support for the specialized Information Technology (IT) work environments that need to be established and maintained for reverse engineering projects that include LION FORTRESS and LION SNOWBOARD.
- 4.4.6. The contractor shall provide engineering support to the LION FORTRESS and LION SNOWBOARD projects. Work on these is presently performed by the incumbent on-site support contractor. Both projects will continue beyond the expiration date of the current contract. While the government does not have the ability to cite other similar projects the contractor may support or quantify the number and/or duration of such projects during the five year term of this support contract, it is likely that other similar projects will arise during the period of performance of this contract.
- 4.4.7. The contractor shall generally be required to provide personnel with final Top Secret/SCI (SI/TK/G/HCS) access in order to support the work of this section.
- 4.5. EW Test Planning
- 4.5.1. The Contractor shall provide support in EW test planning, logistics, management and documentation.
- 4.5.2. Test planning support includes the definition and development of test plans, research and identification of resource requirements and sources and providing scheduling and tracking of test resources for individual test events.
- 4.5.3. Logistics support involves efforts such as identifying those resources necessary to support test activities during deployment and coordinating with support command facilities to schedule and provide the necessary support for individual test events.
- 4.5.4. Test management support includes assistance in coordinating the overall test schedule with NRL personnel, producing briefing materials associated with test events, attending planning meetings and tracking the preparations and conduct of test activities.
- 4.5.5. Documentation includes compilation and publishing of test plans, briefings, management and tracking documents, and authorization/support requests. Documentation will also include post-test support for collection and compilation of testing data and producing final test reports ranging from quick look analysis reports to formal reports.

5. SECURITY

A Secret clearance (or higher) is required to work on Sections 4.1 – 4.3 and 4.5. A Top Secret/SCI clearance is required for personnel working on Section 4.4 and may be required for work within Section 4 - Requirements. Detailed security requirements are delineated in the issued DD 254's relevant to this contract. The Contractor shall ensure that all classified material is handled in accordance with the issued DD 254, the National Security Program Operating Manual (NISPOM) (DoD 5220.22M) and all NRL and applicable Security Program Guides/Directives.

6. EQUIPMENT PURCHASES / GOVERNMENT FURNISHED MATERIALS/ EQUIPMENT/INFORMATION

6.1. CONTRACTOR FURNISHED EQUIPMENT, MATERIALS, SUBCONTRACTS AND SUPPLIES

The Contractor is responsible for providing all supplies necessary for performance of this project. Equipment and unexpended materials and supplies purchased by the contractor under this contract become the property of the Government at the end of the performance period. The Contractor shall provide any other equipment, material, and supplies, not furnished by the Government, but required to perform the work defined under Paragraph 3, Performance Requirements, below. The Contractor shall be responsible for any subcontract management necessary for performing efforts described in "Performance Requirements" – Section 4 above.

In the event that NRL is unable to furnish specific equipment, material, supplies, etc. that are found to be necessary to execute a specific tasking, the contractor will be authorized to purchase the items using funds NRL has provided for execution.

6.2. GOVERNMENT FURNISHED EQUIPMENT (GFE)/ GOVERNMENT FURNISHED INFORMATION (GFI)

NRL is providing desk and office space, telephones, office supplies, access to fax machine and copier. NRL will also provide general purpose computers for unclassified e-mail and the like. Where required, NRL will provide computers and access to internal and external classified networks. No other material, labor, or facilities will be furnished by the government unless requested by the contractor and provided for in the contract. If government-furnished property is required for the performance of this effort, the contract shall clearly identify what is required and the time it is necessary for uninterrupted performance of the effort.

7. CONTRACT ADMINISTRATION AND MANAGEMENT

7.1. CONTRACT MANAGEMENT

The Contractor shall establish clear organizational lines of authority and responsibility to ensure effective management of the resources assigned to the requirement. The Contractor shall maintain continuity between the support operations at NRL and the contractor's corporate offices.

7.2. CONTRACT ADMINISTRATION

The Contractor shall establish processes and assign appropriate resources to effectively administer the requirement. The Contractor shall respond to Government requests for contractual actions in a timely fashion. The Contractor shall have a single point of contact between the Government and Contractor personnel and provide the name of the individual(s) in writing to the Contracting Officer upon contract award.

8. TRANSITION

The Contractor shall follow the transition plan submitted as part of the Contractor's Transition Management Plan and keep the Government fully informed of status throughout the transition period. This plan should describe the Contractor's transition in to service at the beginning of the contract, and how work would be transitioned to a different contractor at the end of the contract. The Contractor should plan for the transfer of work control and information, addressing any security issues, the transfer and accountability of GFE, inspections and acceptance, and delineating the

method for processing and assigning tasks during the phase-in/phase-out periods. The plan should address how the Contractor will implement adequate measures to coordinate communications with the incumbent contractor (phase in) or to an incoming contractor (phase out) and NRL staff in order to ensure uninterrupted workflow and minimal mission impact during the transition process.

Phase-In Period – up to 60 days. The period between contract award and contract commencement will constitute the Contract phase-in period. During the contract phase-in period, the Contractor shall prepare to assume full responsibility for all areas of operation in accordance with the terms and conditions of this contract. Contractor shall take all actions required for a smooth transition to support total contract operations as proposed and accepted. During the contract phase-in period, the Contract shall at a minimum: obtain all required certifications and clearances, obtain all required personnel security clearances, and attend post-award meetings as required.

Phase-Out Period – up to 60 days. The period between contract completion from incumbent contractor and award/commencement of successor/incoming Contractor will constitute the contract phase-out period. During the contract phase-out period, the Contractor shall continue all areas of operation in accordance with the terms and conditions of this contract and make all relevant information concerning program and its operations available to the incoming Contractor to ensure the Government does not have interruption in support. The phase-out transition includes inventory of and turning over Government Furnished Property/Equipment/Information. The Contractor agrees to furnish phase-in training and exercise its best efforts and cooperation to effect an orderly and efficient transition to the incoming Contractor.

9. DELIVERABLES

The contractor shall provide deliverables with the schedule and format as outlined in the CDRL's.

10. TRAVEL

The contractor shall obtain prior approval for travel and travel related costs.